

**Claim 20 (Original)**

A apparatus as defined in claim 11, wherein said treating liquid includes hydrofluoric acid.

**Claim 21 (New)**

A substrate treating apparatus for performing a predetermined treatment of substrates, comprising:

a treating tank for immersing the substrates in a treating liquid stored therein;

a holding arm for holding the substrates in vertical posture, said holding arm being movable to a treating position in said treating tank for immersing the substrates in the treating liquid;

a control unit, which stores a relationship between use history and treating rate of the treating liquid and an up-to-date use history of the treating liquid;

which derives a current treating rate  $R_m$  from said relationship between use history and treating rate of the treating liquid and said up-to-date use history of the treating liquid; and

which derives a corrected treating time  $A_1$  from;

$$A_1 = T_i \bullet (R_i / R_m)$$

where  $T_i$  is a treating time specified in a recipe with reference to a fresh portion of said treating liquid, and  $R_i$  is a treating rate of the fresh portion;

wherein said substrates are treated for said corrected treating time  $A_1$ .

**Claim 22 (New)**

A apparatus as defined in claim 21, wherein said treating time is an etching time and said treating rate is an etching rate, and said control unit is arranged to derive said corrected treating time from;

$$A_1 = T_i \bullet (R_i / R_m)$$

where  $T_i$  is an etching time specified in a recipe with reference to a fresh portion of said treating liquid,  $R_i$  is an etching rate of the fresh portion, and  $R_m$  is the current etching rate.

## REMARKS/ARGUMENTS

This is responsive to the Office Action dated April 7, 2006.

Claims 14-16 were rejected under 35 U.S.C. §112, paragraph 2, because of questions about certain terms. The term “computing device” is readable on the unit 39 (see page 10, lines 9-11). The term “calculating device” is readable on the unit 37 (see page 10, lines 2-3).

The term “treating” time or rate can refer to either etching or cleaning (see page 4, lines 20-21). In amended claim 11 this term is used broadly; amended claim 14 specifies that the “treating” may correspond to etching.

The amended claims are believed to make the terms consistent and clear. See also new claims 21 and 22.

Claims 11-20 were rejected under 35 U.S.C. §103 over the Shekel, JP’297 and Phan et al. references. Claims 17-19 were also rejected over Shekel, JP’297, Phan et al., and Schnegg.

Claim 11 has been amended to include a formula from which the computing device derives a corrected treating time. Thus, the computing device of claim 11 derives a corrected treating time  $A1$  from  $Ti \bullet (Ri/Rm)$ , where  $Ti$  is a treating time specified in a recipe with reference to a fresh portion of the treating liquid, and  $Ri$  is a treating rate of the fresh portion.

Shekel et al. stores a history of use time of a treating liquid, but fixes an etching rate by “adjusting the concentration” of the treating liquid. Shekel et al. does not disclose or suggest the feature of the present invention that a corrected treating time  $A1$  is derived from equation  $A1 = Ti \bullet (Ri/Rm)$ , where  $Ti$  is a treating time specified in a recipe with reference to a fresh portion of the treating liquid, and  $Ri$  is a treating rate of the fresh portion. Thus, there is a clear difference in construction between the present invention and Shekel et al.

Phan et al. changes etching time, i.e., treating time, but acquires etching information from a sensor during treatment, and adjusts the treating time based on this information and three-dimensional data provided by a process engineer. The present invention never acquires information from a sensor, but rather, determines a corrected treating time  $A1$  from the given formula. In this respect the present invention is clearly different from Phan et al.

In other words, Phan et al. discloses or suggests nothing about the computing device of the present invention.

No relevant points are seen in either JP'297 or Schnegg.

Thus, even if combined, the references would not suggest the invention of claim

11. Claim 21 recites the same operations and is allowable for the same reasons.

For at least these reasons, allowance of claims 11-14 and 17-22 is requested.

THIS CORRESPONDENCE IS BEING  
SUBMITTED ELECTRONICALLY  
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Respectfully submitted,



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